Systematic equity management – a complement to traditional equity management?

Sébastien Bauchart
Portfolio Manager
sbauchart@seven-cm.com
+33 1 42 33 75 37

"Smart beta", "enhanced index", and "factor investing" are all financial terms which, until recently, were relatively unknown, but are now on the lips of many investors.

The increased popularity of these systematic equity management methods and the institutionalisation of index-linked "intelligent" products now seem to be broadening investors' horizons and opening up new sources of performance.

The aim of this study is to analyse the performance of some of these security selection factors, used as part of systematic equity management strategies.

We have therefore chosen to focus on six security selection criteria: the price-to-earnings ratio, the price-to-sales ratio, the price-to-book ratio, 5-year average growth in earnings per share, momentum and financial analyst consensus.

In doing so, we will gain a representative sample of the different investment philosophies that prevail in this field.

Methodology

The performance simulations that will be presented in this study are based on the period from 1 January 2000 to 31 October 2014.

It therefore covers two phases of pronounced economic downturn (2000–2003 and 2007–2009) and two phases of significant upswings (2003–2007 and 2009–2014).

Our benchmark stock index is the StoxxEurope 600 Index (dividends reinvested).

Our performance simulation procedure has been drawn up such that the results presented are completely unbiased, particularly in terms of survivorship bias and data anticipation.

For each of the selection criteria that we will study, we will limit our investment universe to securities in the Stoxx Europe 600 Index with annualised volatility (calculated over 120 days) of between 10 and 50%.

We will apply a transaction fee of 0.25% to the total transaction amount.

The portfolio includes the 25 best securities each month according to the selection criterion under examination.

Each security selected will be held in the portfolio for a minimum of 12 months, with one twelfth of the portfolio being renewed each month.

The price data and fundamental data used in the performance simulations are taken from Bloomberg and adjusted for all securities transactions that may have influenced share prices (dividend detachment, splits, bonus share allocations, etc.).

Below are the Bloomberg fields used in our study:

"PX_TO_BOOK_RATIO"
"PX_TO_SALES_RATIO"
"PE_RATIO"
"BASIC_EPS_5YR_AVG_GR"
"EQY_REC_CONS"
"TOT_ANALYST_REC"

Price-to-earnings ratio [PER]

The price-to-earnings ratio is calculated by dividing a company's market capitalisation by its net income.

It is undoubtedly the most well-known stock market indicator and probably one of the most frequently used by the financial community.

$$Price\ Earning\ ratio = \frac{Market\ capitalization}{Net\ income}$$

The commonly applied investment logic is as follows:

The lower a company's **PER**, the better the investment opportunity. Conversely, the higher a company's **PER**, the riskier it is to invest in the company.

	Low PER	High PER	Stoxx Europe 600
Annualised return	+ 8.89%/year	+ 0.95%/year	+ 1.83%/year
Annualised volatility	18.51 %	18.53 %	19.84 %
Maximum drawdown	- 59.13 %	- 61.20 %	-58.69 %

Considering the substantial outperformance of our *low-PER* portfolio, it comes as a great surprise that our *high-PER* portfolio performs only slightly less well than the Stoxx Europe 600 Index.

For the purpose of confirming the relevance of the PER selection criteria, clearly we would have preferred to see the *high-PER* portfolio post a significantly poorer performance than our benchmark index.

Price-to-sales ratio [PSR]

The price-to-sales ratio is calculated by dividing a company's market capitalisation by its turnover.

$$Price\ to\ Sales\ ratio = \frac{Market\ capitalization}{Total\ sales}$$

The commonly applied investment logic is as follows:

The lower a company's **PSR**, the better the investment opportunity. Conversely, the higher a company's **PSR**, the riskier it is to invest in the company.
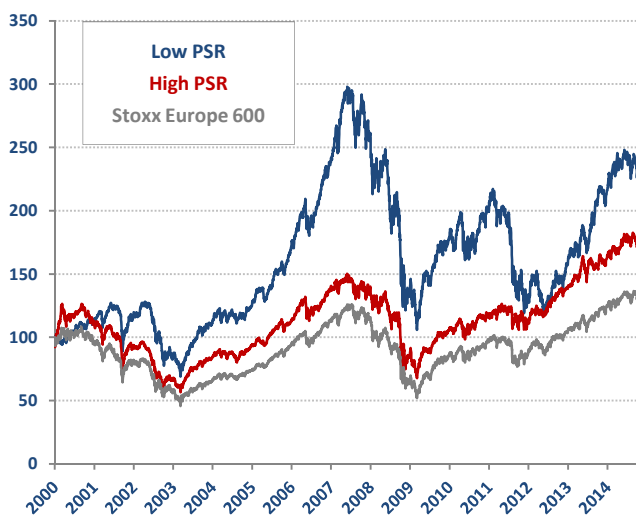
	Low PSR	High PSR	Stoxx Europe 600
Annualised return	+ 5.67%/year	+ 3.96%/year	+ 1.83%/year
Annualised volatility	20.91 %	17.62 %	19.84 %
Maximum drawdown	- 64.43 %	- 55.21 %	-58.69 %

While according to the investment logic stated above, it is normal to see the *low-PSR* portfolio outperform the *high-PSR portfolio,* it is extremely concerning to note that the **high-PSR** portfolio outperforms our benchmark index, the Stoxx Europe 600 index.

In fact, it is very difficult to conclude that the price-to-sales ratio is a relevant selection criterion, given the lack of "symmetry" in the performances of the two portfolios.

Price-to-book ratio [PTB]

The price-to-book ratio is calculated by dividing a company's market capitalisation by its net assets.

$$Price\ to\ Book\ ratio = \frac{Market\ capitalization}{Total\ assets\ -\ Intangible\ assets\ \&\ liabilities}$$

The commonly applied investment logic is as follows:

The lower a company's **PTB**, the better the investment opportunity. Conversely, the higher a company's **PTB**, the riskier it is to invest in the company.
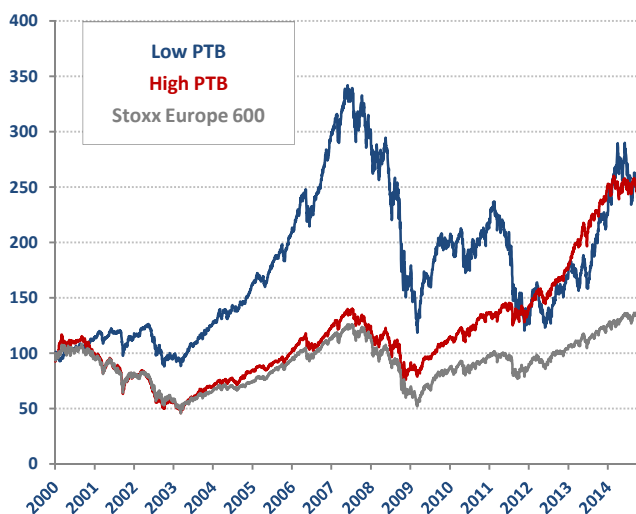
	Low PTB	High PTB	Stoxx Europe 600
Annualised return	+ 5.86%/year	+ 6.15%/year	+ 1.83%/year
Annualised volatility	20.64 %	16.54 %	19.84 %
Maximum drawdown	- 65.37 %	- 60.70 %	-58.69 %

These results are particularly surprising – the *high-PTB* portfolio generates a higher annualised return than the *low-PTB* portfolio and does so with a lower level of overall volatility.

It should be noted that since the low point for stock market indices was reached in 2009 (31 March), the *high-PTB* portfolio has posted growth of 199%, whereas the *low-PTB* portfolio has grown by only 76.65% over the same period.

Earnings per share – 5-year average growth [5YR]

The stock market indicators that we have studied so far – price-to-earnings ratio, price-to-sales ratio and price-to-book ratio – are ultimately indicators that aim to assess the attractiveness of a security in terms of market valuation.

Analysing the average annual growth of earnings per share allows us to assess the historical capacity of a company to grow its profits.

The commonly applied investment logic is as follows:

The higher a company's **5YR growth**, the better the investment opportunity. Conversely, the lower a company's **5YR growth**, the riskier it is to invest in the company.
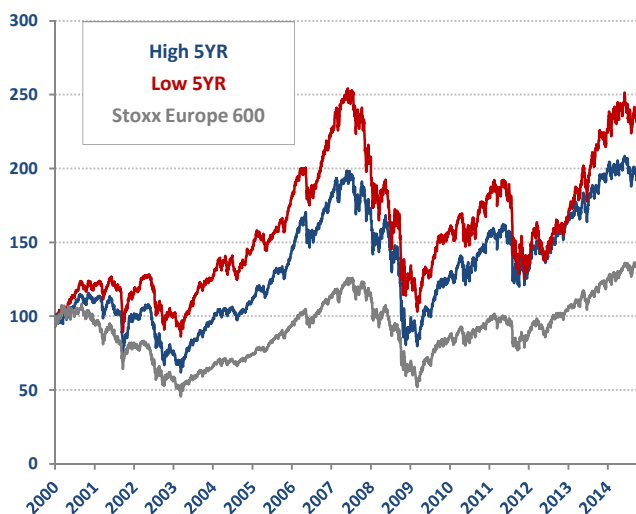
	High 5YR	Low 5YR	Stoxx Europe 600
Annualised return	+ 4.22%/year	+ 5.30%/year	+ 1.83%/year
Annualised volatility	18.34 %	17.93 %	19.84 %
Maximum drawdown	- 59.82 %	- 59.48 %	-58.69 %

Once again, the results are surprising – the *low 5YR* portfolio generates a higher annualised return than the *high 5YR* portfolio.

Both portfolios post better performances than our benchmark index.

Financial analyst consensus on the security [RATING]

The Bloomberg financial database gives us access to a synthetic rating that reflects the opinion of financial analysts on the various companies we are studying.

This rating ranges from a minimum of 1 to a maximum of 5.

1 means that financial analysts are selling the security
5 means that financial analysts are buying the security

We have chosen to only retain securities on which at least 10 analysts have given their opinion.

The commonly applied investment logic is as follows:

The higher a company's **rating**, the better the investment opportunity. Conversely, the lower a company's **rating**, the riskier it is to invest in the company.
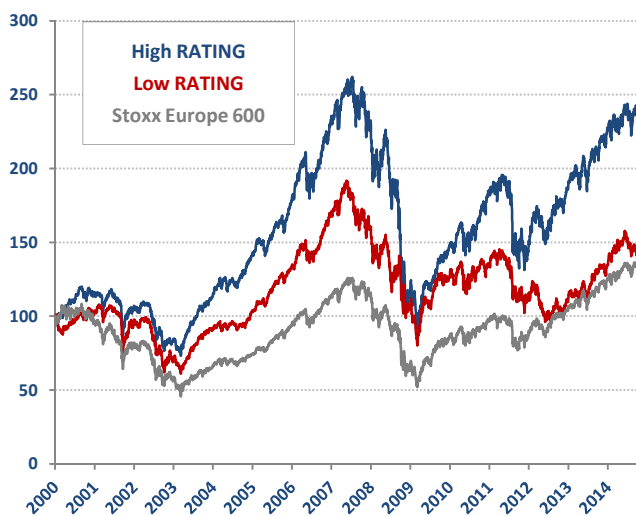
	High RATING	Low RATING	Stoxx Europe 600
Annualised return	+ 5.92%/year	+ 2.19%/year	+ 1.83%/year
Annualised volatility	18.80 %	17.22 %	19.84 %
Maximum drawdown	- 65.26 %	- 58.17 %	-58.69 %

The *high-RATING* portfolio significantly outperforms the *low-RATING* portfolio and our benchmark index.

The strong performance of the *low-RATING* portfolio against the Stoxx Europe 600 Index is most likely attributable to the fact that financial analysts that sell execution services typically tend to express positive opinions on securities rather than negative ones.

Generally, if they have a negative opinion on a security, they will simply not express an opinion at all.
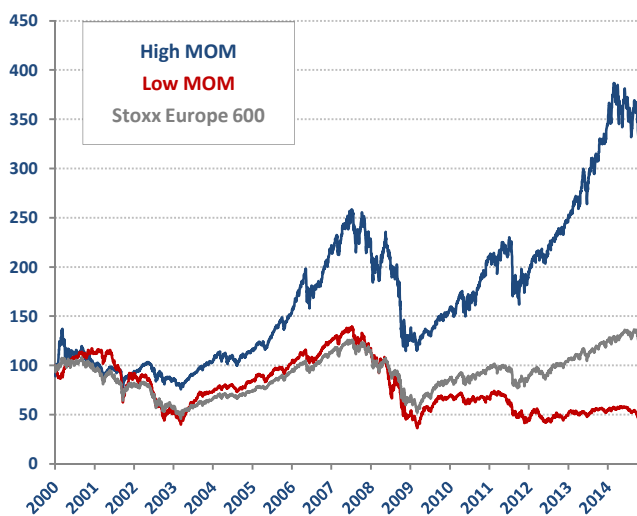
Momentum [MOM]

Momentum, a classic trend indicator, represents the variation in a security over the last x days.

For this study, we will use a calculation window of 200 days:

$$Momentum = \frac{Price_j}{Price_{j\_199}} - 1$$

The higher a company's **momentum,** the better the investment opportunity. Conversely, the lower a company's **momentum**, the riskier it is to invest in the company.
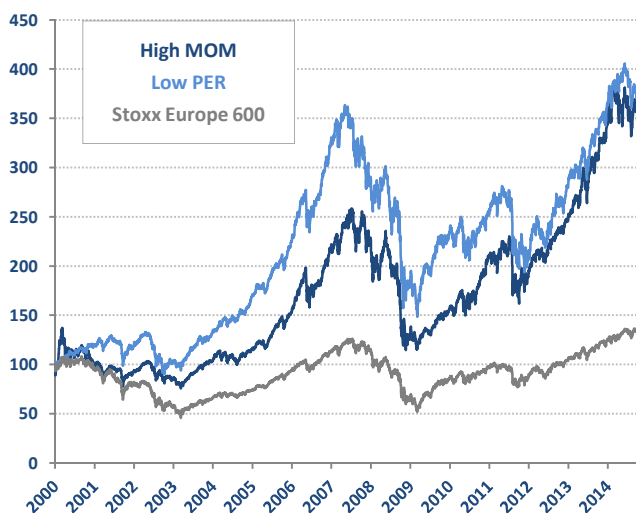

	High MOM	Low MOM	Stoxx Europe 600
Annualised return	+ 8.34%/year	- 4.59%/year	+ 1.83%/year
Annualised volatility	20.37 %	21.35 %	19.84 %
Maximum drawdown	- 55.18 %	- 74.0 %	-58.69 %

These results are perfectly in line with the theory –

the **high-MOM** portfolio substantially outperforms the **low-MOM** portfolio

and the **low-MOM** portfolio significantly underperforms our benchmark index.

We therefore have "perfect symmetry" in our results:

High MOM > *Benchmark index* > **Low MOM**

December 2014/**Systematic Equity**

Momentum [MOM] vs. Price-to-earnings ratio [PER]

Our portfolio simulations show that the two most beneficial selection criteria in terms of performance and symmetry of results are momentum and the price-to-earnings ratio.

	High MOM	Low PER	Stoxx Europe 600
Annualised return	+ 8.34%/year	+ 8.88%/year	+ 1.83%/year
Annualised volatility	20.37 %	18.51 %	19.84 %
Maximum drawdown	- 55.18 %	- 59.14 %	-58.69 %

These two portfolios, MOM and PER, are based on very different investment logic, where the MOM portfolio is built around a wholly technical approach that aims to profit from a security's capacity to outperform its benchmark index.

Conversely, the PER portfolio follows a contrarian approach that aims to capitalise on an anomaly in market valuation.

In one case, we buy *"what has risen"*, anticipating that the phenomenon will continue, and in the other case we buy *"what has fallen"*, representing an opportunity in terms of market valuation on the basis of current market prices.

These two approaches therefore differ in terms of investment logic, but complement each other in terms of performance.

Momentum [MOM] vs. Price-to-earnings ratio [PER]

If we look in detail at the structure of the MOM and PER portfolios, it becomes apparent that the level of overlap between the two is very limited.

The overlap indicates the percentage of securities common to both portfolios on a given date, *T*.

The lower the level of overlap, the greater the difference between the structure of the two portfolios.

Max overlap : 17.13 %

Median overlap : 6.15 %
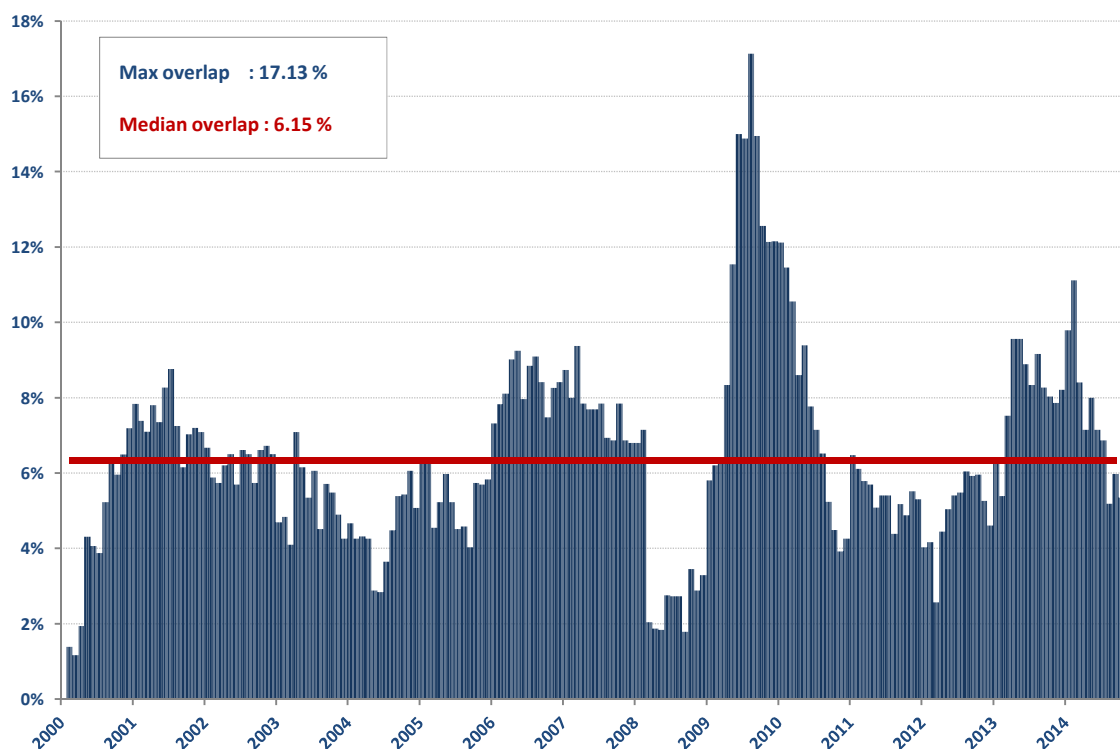
This low level of overlap comes as no surprise, given the difference in the investment logic of the two portfolios.

This analysis shows us that, based on the same investment universe, the Stoxx Europe 600, and by constructing portfolios that differ completely in their structure, we can outperform our benchmark index.

Momentum [MOM] vs. Financial analyst consensus [RATING]

Of all the selection criteria that we have studied, financial analyst consensus is probably the one which most resembles a classic fundamental analysis approach.

This is because financial analysts use a series of fundamental criteria to make their recommendation on a security, rather than any one single criterion.

	High MOM	High RATING	Stoxx Europe 600
Annualised return	+ 8.34%/year	+ 5.92%/year	+ 1.83%/year
Annualised volatility	20.37 %	18.80 %	19.84 %
Maximum drawdown	- 55.18 %	- 65.27 %	-58.69 %

Thus, by comparing the **high-MOM** portfolio with the **high-RATING** portfolio, we are comparing a single-criterion technical approach (momentum) with a multi-criteria fundamental approach (financial analyst consensus).

Although it is clear that the performance of our **high-RATING** portfolio cannot be considered entirely representative of performance based on "traditional equity management", it remains significant and interesting nevertheless.

Between 2001 and 2010, we see that the performance of the two portfolios was very similar (**high MOM**: + 108 % // **high RATING**: + 83%), but then diverged from 2011 onwards, with the **high-MOM** portfolio growing by 64.48%, compared with growth of 31.85% for the **high-RATING** portfolio.

Momentum [MOM] vs. Financial analyst consensus [RATING]

The analysis of the overlap between the two portfolios once again reveals two very different portfolio structures.

The complementary nature of a single-criterion technical approach and a multi-criteria fundamental approach is therefore clear, with the combination of these two approaches undoubtedly creating value for investors.
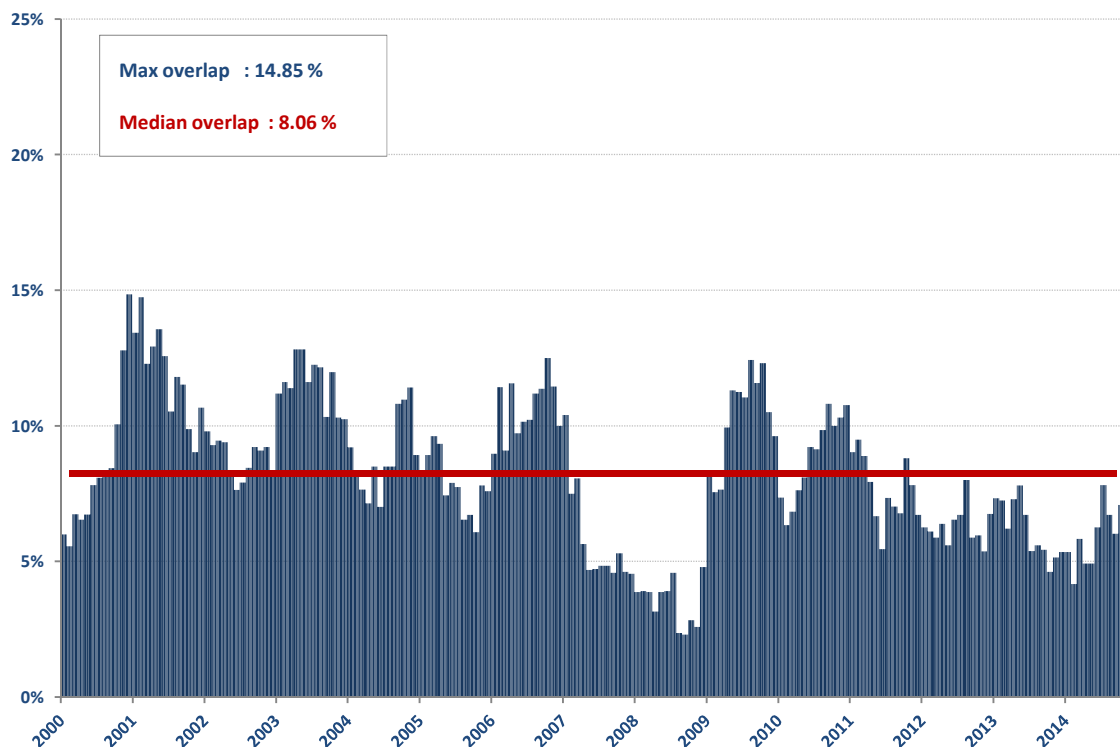
Conclusion

Over the course of this study, we have identified certain security selection criteria whose relevance has tended to be confirmed by performance analysis.

We have analysed the structure of portfolios in detail and identified that, even given differing portfolio structures and investment logic, it is nonetheless possible to outperform our benchmark index.

It is clear that there are no stock market indicators whose performance is incontestable and that the claim that a single-criterion approach is inferior to a multi-criteria approach is incorrect.

The benefit for the investor in combining systematic equity management with traditional equity management is obvious and is not necessarily a source of overlap within the investor's portfolio.